U8903B Benchtop Audio Analyzer

This manual provides the documentation for the following instruments:

U8903B

User's Manual

KEYSIGHT TECHNOLOGIES

Notices

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CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

WARNING

A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

Warranty

This Keysight technologies instrument product is warranted against defects in material and workmanship. During the warranty period, Keysight Technologies will, at its option, either repair or replace products that prove to be defective. For warranty service or repair, this product must be returned to a service facility designated by Keysight Technologies. Buyer shall prepay shipping charges to Keysight Technologies, and Keysight Technologies shall pay shipping charges to return the product to Buyer. For products returned to Keysight Technologies from another country, Buyer shall pay all shipping charges, duties, and taxes.

Where to Find the Latest Information

Documentation is updated periodically. For the latest information about these products, including instrument software upgrades, application information, and product information, see the following URLs:

http://www.keysight.com/find/U8903B

To receive the latest updates by email, subscribe to Keysight Email Updates:

http://www.keysight.com/find/MyKeysight

Information on preventing instrument damage can be found at:

Is your product software up-to-date?

Periodically, Keysight releases software updates to fix known defects and incorporate product enhancements. To search for software updates for your product, go to the Keysight Technical Support website at:

http://www.keysight.com/find/techsupport

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Contacting Keysight Sales and Service Offices

Assistance with test and measurement needs, and information on finding a local Keysight office, is available on the Internet at:

http://www.keysight.com/find/assist

If you do not have access to the Internet, please contact your field engineer.

NOTE In any correspondence or telephone conversation, refer to the instrument by its model number and full serial number. With this information, the Keysight representative can determine whether your unit is still within its warranty period.

Products Covered by this Document

Product Family Name	Product Names	Model Numbers
Audio Analyzer	Benchtop Audio Analyzer	U8903B

This document describes instrument security features and the steps to declassify an instrument through memory clearing, sanitization or removal.

For additional information, go to:

http://www.keysight.com/find/security

NOTE Be sure that all information stored by the user in the instrument that needs to be saved is properly backed up before attempting to clear any of the instrument memory. Keysight Technologies cannot be held responsible for any lost files or data resulting from the clearing of memory. Be sure to read this document entirely before proceeding with any file deletion or memory clearing.

Security Terms and Definitions

Term	Definition
Clearing	As defined in Section 8-301a of DoD **5220.22-M**, clearing is the process of eradicating the data on media before reusing the media so that the data can no longer be retrieved using the standard interfaces on the instrument. Clearing is typically used when the instrument is to remain in an environment with an acceptable level of protection.
Instrument Declassification	A term that refers to procedures that must be undertaken before an instrument can be removed from a secure environment, such as is the case when the instrument is returned for calibration. Declassification procedures include memory sanitization or memory removal, or both. Keysight declassification procedures are designed to meet the requirements specified in **DoD 5220.22-M**, Chapter 8.
Sanitization	As defined in Section 8-301b of **DoD 5220.22-M**, sanitization is the process of removing or eradicating stored data so that the data cannot be recovered using any known technology. Instrument sanitization is typically required when an instrument is moved from a secure to a non-secure environment, such as when it is returned to the factory for calibration. Keysight memory sanitization procedures are designed for customers who need to meet the requirements specified by the US Defense Security Service (DSS). These requirements are specified in the "Clearing and Sanitization Matrix" in Section 5.2.5.5.5 of the **ISFO Process Manual**.
Secure Erase	Secure Erase is a term that is used to refer to either the clearing or sanitization features of Keysight instruments.

Instrument Memory

This section contains information on the types of memory available in your instrument. It explains the size of memory, how it is used, its location, volatility, and the sanitization procedure.

Table 1: Summary of instrument memory

Memory Type and Size	Writable During Normal Operation?	Data Retained When Powered Off?	Purpose/ Contents	Data Input Method	Location in Instrument and Remarks	Sanitization Procedure
Processor Flash Memory (P3000) 512MB	Yes	Yes	Storage for purchased options information, application firmware	Firmware upgrade, application utility page	Processor Card (U8903-66507)	Refer to Table 2
Internal Flash (Flash Memory Carrier Board) 4GB	Yes	Yes	Storage for user to store data, filter files backup log files and measurements.	Application side menu and SCPI commands	Carrier board (U8903-66508)	Erasable via Secure Erase, go to System > Service > Secure Erase
General Purpose RAM (P3000) 256MB	Yes	No	Storage for temporary data and buffer used by applications.	Program code	Processor Card (U8903-66507)	Cycle power
Bluetooth card SDRAM 64MB	Yes	No	Storage of Arbitrary audio waveform.	Program code	BluetoothCard (U8903-66521)	Cycle power
Bluetooth card SRAM 18Mbit	Yes	No	Bluetooth Processor's temporary data storage.	Program code	BluetoothCard (U8903-66521)	Cycle power
Bluetooth card DDR2 SDRAM 256MB	v	No	DSP processor's temporary data storage.	Program code	BluetoothCard (U8903-66521)	Cycle power

Memory Type and Size	Writable During Normal Operation?	Data Retained When Powered Off?	Purpose/ Contents	Data Input Method	Location in Instrument and Remarks	Sanitization Procedure
Bluetooth card id flash memory 16MB	No	Yes	Store Bluetooth card identification.	Factory update	BluetoothCard (U8903-66521)	Not applicable

Summary of Memory Declassification Procedures

This section explains how to clear, sanitize, and remove memory from your instrument, for all classes of memory that are writeable during normal operation.

NOTE Read this entire document before using any sanitization procedure. Failure to do so may necessitate returning the instrument to an Authorized Keysight Service Center for firmware downloads and recalibration.

Table 2: Processor Flash Memory

Description and purpose	Processor Flash Memory used to store application image, calibration constants, serial number and purchased options information.
Size	512 MB
Memory clearing	Application image can be overwritten by user, user can go to system -> Update -> Load File in order to load the firmware file to overwrite. Purchased options can also be added/removed by user, to remove, go to the front panel press System->Service->Options, select the option to be removed from the selection panel and press “Remove Option” menu.
Memory sanitization	Cleared memory contains no application-specific information. Sanitization is only possible by memory removal.
Memory removal	This memory cannot be removed without damaging the instrument.
Memory validation	For firmware overwrite, a message window will pop up to inform if the process is successful/failed. For options removal, verified the menu items relevant to the option are not seen; neither can the SCPI commands be sent.
Remarks	N/A

Table 3: Internal Flash Memory

Description and purpose	Storage for user to store data, filter files, backup log files and measurements reports.
Size	4G
Memory clearing	To clear the user stored files, ensure current GUI is in standard view, on front panel, press Preset -> To Factory Settings. Alternatively, user can send SCPI commands: SYSTem:PRESet:TYPE FACTory SYSTem:PRESet
Memory sanitization	To securely erase user stored files, user can go to System -> Service -> Secure Erase.
Memory removal	The instrument will still operate even the internal flash memory has been removed, however, the user saved data will be erased after cycle power and the instrument will always start up as factory default settings.
Memory validation	After performing clearing or sanitization procedure, user will not be able to find all the saved user files from the respective folders.
Remarks	N/A

User and Remote Interface Security Measures

Local Lockout

To prevent unintended attempt to switch the instrument to local mode, user can lock the front panel's Local key via the following SCPI command: SYSTem:RWLock
To unlock, send the following SCPI command: SYSTem:LOCal

Screen and Annotation Blanking

The instrument's screen can be set to blank via SCPI command: DISPlay:STATe <On | Off>

USB Mass Storage Device Security

The instrument is equipped with a USB drive which is writtable so that user can save user states, screen capture and export reports. However, the instrument does not allow direct browsing to the usb contents.

Remote Access Interfaces

The user is responsible for providing security for the I/O ports for remote access by controlling physical access to the I/O ports. The I/O ports provide access to all user settings, user states and the display image.

The I/O ports include USB, GPIB and LAN.

The LAN port provides the following services, with limited usages:

a) http – limit to LXI web page access.
b) ftp – only allow to transfer file from/to instrument's fixed folder.
c) Sockets –SCPI only.
d) telnet – SCPI only.
e) Ping – to support LXI

There is also a 'ping' service, which presently cannot be selectively disabled. The concern here might be that it is possible to discover IP addresses of connected instruments in order to query their setups over the net or break into the code.

Procedure for Declassifying a Faulty Instrument

If the instrument is not functioning and the user is unable to use the security procedures described to declassify the instrument, please contact your local Keysight office for support.
http://www.keysight.com/find/contactus

References

1. **DoD 5220.22-M, "National Industrial Security Program Operating Manual (NISPOM)"**

   United States Department of Defense. Revised February 28, 2006.

   May be downloaded in Acrobat (PDF) format from:

   http://www.dss.mil/isp/fac_clear/download_nispom.html

2. **ISFO Process Manual for the Certification and Accreditation of Classified Systems under the NISPOM**

   Defense Security Service.

   DSS-cleared industries may request a copy of this document via email, by following the instructions at:

   http://www.dss.mil/isp/odaa/request.html